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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JACKY SHEN, FENG WU, LUJUN YUAN,
and SHIPENG LI

Appeal 2008-0672
Application 10/733,876
Technology Center 2600

Decided: March 20, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and JOHN A.
JEFFERY, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's
rejection of claims 1, 4-19, 21-26, and 28-34.¹ We have jurisdiction under

¹ Appellants waived attendance at the oral hearing scheduled for March 13, 2008. *See* Communication filed Feb. 25, 2008.

35 U.S.C. § 6(b). We affirm and enter a new ground of rejection under 37 CFR § 41.50(b).

STATEMENT OF THE CASE

Appellants invented a color space coding framework that provides conversions between one or more video formats without the use of a transcoder. A video information stream that includes color information formatted in accordance with a first color space sampling format is split into a base stream and an enhanced stream. During encoding, the enhanced stream can be encoded using spatial information related to the base information stream.² Claim 1 is illustrative:

1. A method comprising:

receiving a video information stream including color information formatted according to a first color space sampling format having a pre-determined number of bits;

splitting the color information into a base information stream formatted according to a second color space sampling format having less than the predetermined number of bits and into an enhanced information stream,

wherein the enhanced information stream is selectively encoded using spatial information obtained from processing of the base information stream or using a previous reference obtained during processing of the enhanced information stream; and

² See generally Spec. 6:8-18.

providing an indicator with at least one of the base information stream and the enhanced information stream that indicates a capability for providing video information according to the first color space sampling format or the second color space sampling format.

The Examiner relies on the following prior art reference to show unpatentability:

Tahara	US 5,412,428	May 2, 1995
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1. Claims 1, 4-19, 21-26, and 28-34 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tahara.
2. Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Tahara.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Brief and the Answer for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

OPINION

The Anticipation Rejection

We first consider the Examiner's rejection of 1, 4-19, 21-26, and 28-34 as being anticipated by Tahara. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of

inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983).

The Examiner has indicated how the claimed invention is deemed to be fully met by the disclosure of Tahara (Ans. 3-6). Regarding representative independent claim 1,³ Appellants argue that Tahara does not disclose selectively encoding the enhanced information stream using (1) spatial information obtained from processing of the base information stream, or (2) a previous reference obtained during processing of the enhanced information stream, as claimed.

Regarding limitation (1) above, Appellants argue that Tahara uses only signals from circuit 101 (which processes color difference signals with intermediate definition) to produce the predictive error signals generated by circuits 111 and 175. Appellants emphasize, however, that these predictive error signals are *not* produced by processing signals from *circuit 100* which processes color difference signals with the lowest definition – a circuit that processes signals that the Examiner equates with the base information stream. As such, Appellants contend, the reference cannot teach selectively

³ Appellants argue independent claims 1, 11, 19, 26, and 30 together as a group. *See* App. Br. 8. Accordingly, we select independent claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii). However, in view of a significant defect in the Examiner's anticipation rejection pertaining to claim 29 as indicated *infra*, we treat this claim separately.

encoding the enhanced information stream using spatial information obtained from processing of the base information stream, as claimed (App. Br. 8-11).

Regarding limitation (2) above, Appellants contend that the functionality of Tahara's select circuit 176 with respect to its ability to compare predictive error signals and select the smaller predictive error signals based on this comparison does not teach encoding/decoding the information stream using a previous reference obtained during processing of the enhanced information stream (App. Br. 11-12).

The Examiner maintains that the functionality of Figure 19 of Tahara fully meets both disputed limitations. According to the Examiner, the selective encoder 176 uses spatial information obtained from circuit 100 (which is said to process the "base" information stream) via up sampling circuit 111. The Examiner further notes that the selective encoder also uses a "previous reference" output from the motion compensation circuit 175 which is obtained from processing the "enhanced" information stream (i.e., circuit 101) (Ans. 6-9).

At the outset, we note that Appellants do not dispute the Examiner's findings with respect to the functionality of circuit 100 processing color information corresponding to a "base information stream." Nor do Appellants dispute the Examiner's findings with respect to the functionality of circuit 101 processing color information corresponding to an "enhanced information stream."

The issue before us, then, is whether the functionality of the encoder of Figure 19 of Tahara selectively encodes the enhanced information stream using (1) spatial information obtained from processing of the base information stream (i.e., circuit 100), or (2) a previous reference obtained during processing of the enhanced information stream (i.e., from circuit 101). For the following reasons, we find that it does.

Tahara discloses encoding and decoding methods of color signal components of picture signals with multiple resolutions (Tahara, Abstract; col. 6, ll. 27-50; Fig. 6). In one embodiment, the encoder 303 utilizes two main processing circuits: (1) circuit 101 which processes color difference signals with intermediate definition, and (2) circuit 100 which processes color difference signals with the lowest definition and luminance signals (Tahara, col. 22, ll. 45-55; Fig. 19).

A key aspect of the encoder is a select circuit 176 that compares (1) the resulting predictive error signals from using the predictive picture signals output from up sampling circuit 111, and (2) the resulting predictive error signals from using the predictive picture signals output from the motion compensation circuit 175. The select circuit then selects the predictive picture signals corresponding to the smaller predictive error signals (Tahara, col. 23, ll. 23-29).

By causing the predictive picture decoded from the color difference signals having low definition to pass through the up sampling circuit 111 (spatial filter), the circuit 101 produces the predictive picture having the same definition as the color difference signals having higher (intermediate)

definition. Moreover, the circuit also produces the predictive picture by locally decoding the color difference signals having higher (intermediate) definition. Then, one of these two predictive pictures providing higher predictive efficiency is adaptively selected, thus compressing data with greater efficiency (Tahara, col. 23, ll. 36-49).

Based on this functionality, we agree with the Examiner that the enhanced information stream is selectively encoded using spatial information obtained from processing the base information stream as claimed. Significantly, one input to the selective encoder 176 comprises the predictive picture signals output from up sampling circuit 111 – signals which are ultimately derived from circuit 100 prior to up sampling.

We agree with the Examiner (Ans. 8) that these signals reasonably correspond to “spatial information” essentially for the reasons indicated by the Examiner. Not only is the up sampling circuit 111 referred to as a spatial filter (Tahara, col. 23, ll. 40-41), this “spatial information” input to the selective encoder is ultimately derived from processing of the base information stream as the Examiner indicates (Ans. 7). As shown in Figure 19, the input to the up sampling circuit 111 is connected to the output of adding circuit 62 – a circuit which is part of circuit 100 (i.e., the circuit that processes color information corresponding to a “base information stream”). Therefore, we find that the selective encoder utilizes, at least in part, information obtained from processing the base information stream via the up sampling circuit 111.

We also agree with the Examiner (Ans. 7-8) that the select circuit, in effect, uses a previous reference obtained during processing of the enhanced information stream as claimed. As shown in Figure 19, the output from motion compensation circuit 175 and frame memory 174 (i.e., a “previous reference”) is input to the select circuit 176. As the figure illustrates, this output sent to the select circuit is based on, at least in part, information obtained from the enhanced information stream via inverse quantizing circuit 171 and IDCT circuit 172.

Therefore, we find Tahara fully meets the disputed limitations of representative claim 1. And since we find all other limitations of representative claim 1 are also fully met by Tahara, we will sustain the Examiner’s rejection of that claim and claims 4-19, 21-26,⁴ 28, and 30-34 which recite commensurate limitations.

The Anticipation Rejection of Claim 29

We will not, however, sustain the Examiner’s anticipation rejection of claim 29 calling for a set-top box. By the Examiner’s own admission, Tahara does not disclose the recited set-top box and therefore cannot anticipate the claim. *See* Ans. 6 (“A set-top box to serve as a device for decoding encoded bit streams is not specifically disclosed in Tahara.”).

⁴ Regarding independent claim 26 (reciting a decoder), we agree with the Examiner’s findings (Ans. 5, 9) with respect to the commensurate functionality of Tahara’s decoder shown in Figure 20.

Accordingly, we cannot sustain the Examiner's anticipation rejection of claim 29.

The Obviousness Rejection of Claim 29

We will, however, sustain the Examiner's obviousness rejection of claim 29 over the teachings of Tahara. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). If the Examiner's burden is met, the burden then shifts to the Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

We find that (1) the Examiner has established at least a prima facie case of obviousness for claim 29 on page 6 of the Answer, and (2) Appellants have not shown error in the Examiner's position to persuasively rebut the Examiner's prima facie case. In this regard, Appellants did not dispute the Examiner's finding of Official Notice, but rather reiterated that Tahara does not teach or suggest a decoder that selectively decodes the enhanced information stream using (1) spatial information obtained from processing of the base information stream, or (2) a previous reference obtained during processing of the enhanced information stream. For the

reasons previously discussed, however, we find Tahara amply suggests these limitations, and the Examiner's prima facie case of obviousness has not been persuasively rebutted. The rejection is therefore sustained.

New Ground of Rejection Under 37 C.F.R. § 41.50(b)

Under 37 C.F.R. § 41.50(b), we enter a new ground of rejection under 35 U.S.C. § 101 for claims 11-18.

Claims 11-18 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Independent claim 11 recites, in pertinent part, a computer readable medium having computer-executable instructions to implement the recited functions. The Specification indicates that “[t]he term computer readable media...includes both storage media and *communication media*” (Spec. 11:7-8; emphasis added). According to the Specification, “[c]ommunication media may typically be embodied by computer readable instructions, data structures, program modules, or other data in a *modulated signal, such as a carrier wave or other transport mechanism*, and includes any information delivery media. The term ‘modulated data signal’ means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal” (Spec. 10:22-11:3; emphasis added).

Thus, reading independent claim 11 in light of the Specification, the recited “computer-readable medium” of claim 7 encompasses a carrier medium that conveys a signal.

Signals are not patentable subject matter under § 101. *In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007). Although the court in *Nuijten* acknowledged the Board’s finding that an allowed claim reciting a storage medium with a signal stored thereon⁵ “nominally puts the claims into the statutory category of a ‘manufacture,’” this claim was nonetheless not before the court. *See Nuijten*, 500 F.3d, at 1351; *see also id.*, at 1357 n.6.

In any event, a carrier medium that *conveys* a signal (e.g., a carrier wave) is distinguished from a tangible medium that *stores* a signal (e.g., a disk, memory, etc.), particularly with respect to the functionality of independent claim 11. Claim 11 calls for instructions that interact with the computer to perform specific functions. It is our view that the computer cannot perform the claimed functions while the instructions are within signals conveyed by a carrier wave.

Specifically, information sent by a carrier wave conveying signals is transmitted by modulating the carrier wave or signal with the information. This information must be received and demodulated before the information is available for use. Thus, the information, *while on the carrier wave or signal*, is unavailable to the computer for performing the functions recited in independent claim 11. It is also likely that all the information necessary to perform the functions of claim 11 never exists within the carrier wave or signal at any one time. In other words, it is typical for information that is

⁵ *See Nuijten*, 500 F.3d at 1351 (“*Nuijten*’s allowed Claim 15 is directed to ‘[a] storage medium having stored thereon a signal with embedded supplemental data...’”).

transmitted by signals conveyed by carrier waves to begin to be received at the receiver before all the information is transmitted. Therefore, it appears to us that program instructions for carrying out the claimed invention cannot exist while the information is being transmitted via signals conveyed by a carrier wave.

Furthermore, while the exemplary carrier media disclosed in the Specification passages noted above certainly implicates physical carriers of information, the disclosure hardly limits the carriers to these examples. Rather, nothing in the passage precludes the use of any tangible means of information carriage.⁶

Thus, when read in light of the Specification, independent claim 11 includes both statutory subject matter (signals stored on a tangible medium) and non-statutory subject matter (signals conveyed by a carrier medium). According to USPTO guidelines, however, such claims must be amended to recite solely statutory subject matter.⁷

For the foregoing reasons, independent claim 11 and dependent claims 12-18 do not recite statutory subject matter under 35 U.S.C. § 101.

⁶ *Cf. Nuijten* at 1353 (“[W]hile the claims are limited so as to require *some* physical carrier of information, they do not in any way specify *what* carrier element is to be used.”) (Emphasis in original).

⁷ *See* MPEP, Rev. 6, Sept. 2007 (“MPEP”) § 2106(C)(2)(2)(a) (“[A] claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application.”).

DECISION

We have sustained the Examiner's anticipation rejection with respect to claims 1, 4-19, 21-26, 28, and 30-34, but we have not sustained the anticipation rejection of claim 29. We have, however, sustained the Examiner's obviousness rejection of claim 29. Therefore, the Examiner's decision rejecting claims 1, 4-19, 21-26, and 28-34 is affirmed. We have also entered a new ground of rejection under 37 C.F.R. § 41.50(b) for claims 11-18.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides that “[a] new ground of rejection . . . shall not be considered final for judicial review.”

Section 41.50(b) also provides that the Appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner. . . .

(2) Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

Appeal 2008-0672
Application 10/733,876

AFFIRMED
37 C.F.R. § 41.50(b)

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